

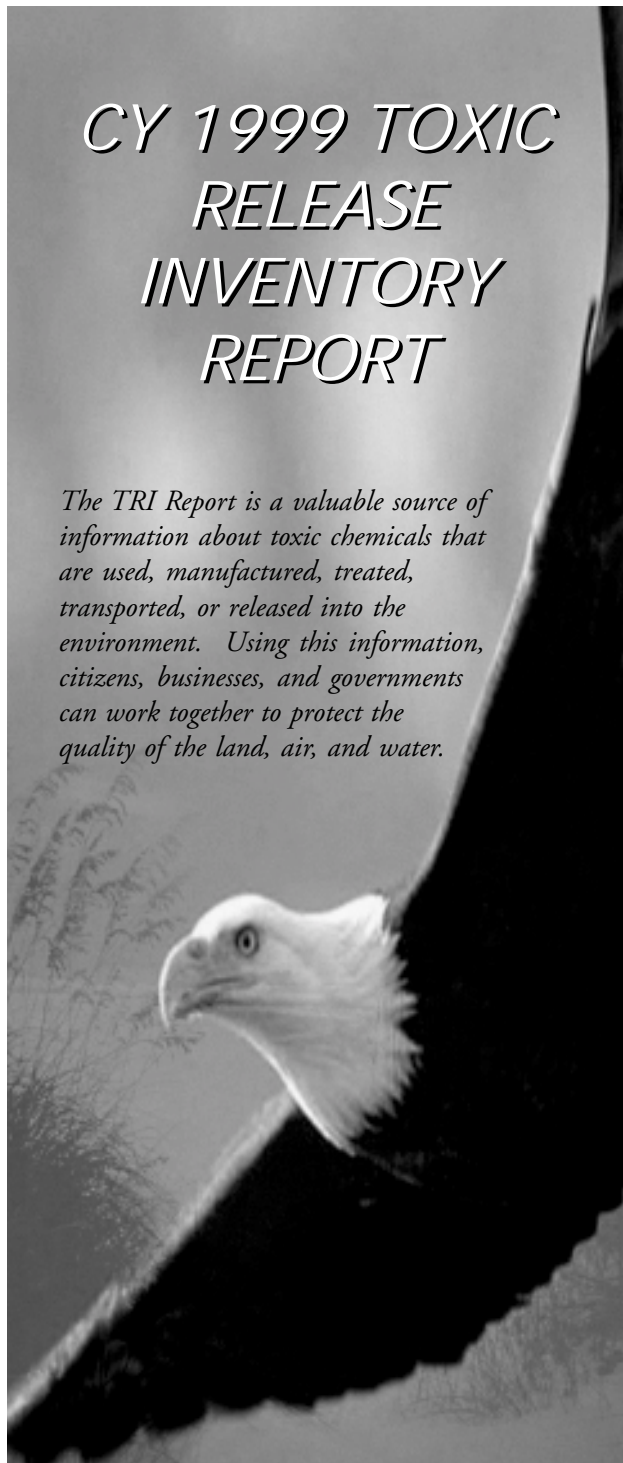
The Toxic Release Inventory (TRI) Report³ is a valuable source of information about toxic chemicals that are used, manufactured, treated, transported, or released into the environment. The Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and the Pollution Prevention Act of 1990 mandated that EPA develop and maintain a publicly accessible toxic chemical database. This database, known as the TRI, contains information concerning waste management activities and the release of toxic chemicals by facilities that manufacture, process, or otherwise use these materials. Using this information, citizens, businesses, and governments can work together to protect the quality of their land, air, and water.

TRI facilities are required to report releases of toxic chemicals into the air, water, and land. In addition, they must report off-site transfers of wastes for treatment or disposal at a separate facility. Facilities are also required to report on pollution prevention activities and chemical recycling. Facilities must submit reports on or before July 1 each year, covering activities that occurred during the previous calendar year.

When EPA developed the TRI database, it included an original list of 300 reportable chemicals. To be included on this list, a chemical's toxicity must be found to cause serious chronic or acute human health risks, such as cancer, reproductive dysfunction, or neurological disorders, and/or adverse environmental effects. Not only can EPA add to the list of reportable chemicals, but it can

CY 1999 TOXIC RELEASE INVENTORY REPORT

The TRI Report is a valuable source of information about toxic chemicals that are used, manufactured, treated, transported, or released into the environment. Using this information, citizens, businesses, and governments can work together to protect the quality of the land, air, and water.



³ Although the reporting period for this Annual Report to Congress covers FY 2000 (October 1, 1999 through September 30, 2000), the TRI reporting period covers CY 1999 (January 1 through December 31, 1999).

also remove, or delist, chemicals, as it did with phosphoric acid in CY 1999. Chemicals are added and delisted through either EPA-initiated action or an independent petition process.

EPA’s TRI reporting program is constantly evolving through the addition of chemicals, chemical categories, newly regulated facilities, and new data elements. In addition to these changes, EPA allows TRI reporting facilities to submit revisions to prior years’ reports if the data are found to be deficient in a later review. Facilities may initially submit estimates of their releases and off-site transfers. However, after the reporting deadline has passed, facilities may become aware that they misreported. Enabling facilities to revise historical data encourages review of original data submissions and recalculation of reportable TRI figures.

ORIGINAL BASELINE GOALS AND ACCOMPLISHMENTS

In response to the fact that Federal agencies are not regulated under EPCRA, in 1993, President Clinton issued E.O. 12856, “Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements,” which required Federal facilities to comply with TRI reporting requirements. In addition, the E.O. required Federal facilities to reduce TRI releases and off-site transfers by 50 percent from the baseline year of 1994. By 1996, DoD had achieved this objective—3 years ahead of the President’s goal of 1999.

Going beyond the achievement of meeting TRI reduction goals early, many facilities continued to reduce releases and off-site transfers below reporting thresholds, and no longer are required to report. In addition, some facilities have closed and no longer report (Figure 36). In 1994, 118 DoD facilities reported TRI releases or off-site transfers. By 1999, only 63 facilities reported.

Figure 36
Specific Facilities Closed
1994 to 1999

ARMY	<i>Kansas City Ammunition Plant, Kansas</i> <i>Longhorn Ammunition Plant, Texas (layaway status)</i> <i>Stratford Army Engine Plant, Connecticut</i> <i>Sunflower Army Ammunition Plant, Kansas</i>	DLA	<i>Defense Depot Ogden, Utah</i> <i>William Langer Jewel Bearing Plant, North Dakota</i>
		AIR FORCE	<i>None</i>
NAVY	<i>Naval Air Station, Alameda, California</i> <i>Naval Shipyard, Long Beach, California</i> <i>Naval Shipyard, Philadelphia, Pennsylvania</i> <i>Naval Air Warfare Center, Trenton, New Jersey</i> <i>Hercules Corporation, McGregor, Texas (GOCO*)</i> <i>Northrop Grumman Calverton, Maryland (GOCO*)</i> <i>Northrop Grumman Bethpage, Maryland (GOCO*)</i>	*GOCO = <i>Government-Owned, Contractor-Operated Facility</i>	

CHANGES TO REPORTING REQUIREMENTS SINCE 1994

Since DoD began reporting TRI releases and off-site transfers in 1994, EPA has made several changes to the reporting requirements that have significantly affected the measurement of DoD's progress against the 1994 baseline.⁴ In 1995, EPA added 300 chemicals to the list of TRI reportable chemicals, which doubled the list from 300 to 600. (There are currently almost 650 chemicals on the TRI reporting list.) This was a significant modification that had a noteworthy impact on DoD's reporting, particularly because the additional chemicals included nitrate compounds. Treating wastewater from munitions manufacturing generates large amounts of nitrate compounds. Reducing the creation of these nitrate compounds is difficult due to manufacturing process requirements and the lack of effective, alternative methods for wastewater treatment.

The additional chemicals are separate from the original 50 percent reduction goal established in E.O. 12856. Therefore, the 50 percent goal that DoD reached in 1996 was measured against the original list of 300 chemicals.⁵

⁴ All of EPA's changes to TRI reporting requirements affect all TRI reporters nationwide, not just DoD.

⁵ In 1995, EPA removed all non-aerosol forms of hydrochloric acid (HCl) from the TRI list of reportable chemicals. However, the aerosol forms of HCl remain reportable and thus appear on the 1999 Top 10 Chemical Snapshot lists.

WHO REPORTS?

Only those facilities that manufacture or process listed toxic chemicals in excess of 25,000 pounds within one calendar year, or otherwise use listed toxic chemicals in excess of 10,000 pounds within one calendar year, are required to submit TRI Reports to EPA and the states by July 1 of each calendar year.

ADDITION OF MUNITIONS DEMILITARIZATION REPORTING REQUIREMENTS

The U.S. Armed Forces continue to have a large stockpile of excess munitions. The current inventory is estimated at 400,000 tons and is growing at a rate of 40,000 tons per year. Many of the materials in the stockpile are old, unstable, and unsafe. The most common disposal method in use today is open burning/open detonation (OB/OD), which is a relatively simple and cost effective means for reducing the stockpile.

OB/OD operations are conducted to destroy excess, obsolete, or unserviceable munitions. In OB operations, munitions are destroyed by a self-sustained combustion, which is ignited by an external source, such as flame or heat. In OD operations, explosives and munitions are destroyed through a controlled series of detonations. Both methods generate releases to the environment.

Although reporting data from demilitarization activities, such as OB/OD, is not a new requirement, DoD deferred reporting this data until the proper measurement tools were

available. Therefore, DoD did not include releases and off-site transfers from these activities in the 1994 baseline. Installations included demilitarization activities for the first time in their data submittals for this report.

While each Military Service conducts demilitarization activities and reports releases and off-site transfers from these activities, the Army is the largest producer of demilitarization-related releases and off-site transfers because it manages most of the munitions for all of the Military Services. Demilitarization activities are dependent on mission requirements, so the level of demilitarization activity fluctuates with activity levels. For this first demilitarization reporting year, 6 Army installations reported releases and off-site transfers as a result of OB/OD (Sierra Army Depot, California; McAlester Army Ammunition Plant, Oklahoma; Anniston Army Depot, Alabama; Red River Army Depot, Texas; Letterkenny Army Depot, Pennsylvania; and Lone Star Army Ammunition Plant, Texas). Sierra Army Depot was the largest single contributor to the Army's and DoD's TRI total, at over 5.4 million pounds.

DoD's CY 1999 TRI REPORT

DoD's compliance with TRI reporting requirements is important for many reasons, most of all because it protects our people. By reducing releases and off-site transfers of toxic chemicals, we reduce our impact on the

environment, which is beneficial not only to our service members and their families, but also for those living near our facilities.

In 1999, we achieved a 77 percent reduction of DoD's toxic chemical releases and off-site transfers from the original 1994 baseline (Figure 37). DoD's reductions in TRI releases and off-site transfers since 1994 are due to three primary factors—

- An emphasis on pollution prevention
- Production changes and base closures
- Improved reporting and more accurate accounting for material.

Since 1996, DoD's large maintenance and depot operations, primarily those engaged in overhauling and repairing aircraft, ships, and tanks, and munitions manufacturing and demilitarization, have reported the largest volumes of DoD releases and off-site transfers.

As mentioned previously, new reporting requirements became effective in 1999, which mandate TRI reporting from additional activities, including demilitarization. Due to these new reporting requirements, DoD reported releases and off-site transfers of more than 9.7 million tons, an increase of almost 250 percent from the previous reporting year. Even with such a dramatic increase in total releases and off-site transfers, DoD continued to reduce TRI releases and off-site transfers, as evidenced by the fact that DoD achieved a 10 percent reduction in 1999, from the 1994 baseline, after factoring in newly reportable chemicals and activities (Figure 38).

Figure 37 highlights DoD's achievements in reducing toxic chemical releases and off-site transfers since 1994, measured against the 1994 TRI baseline. This figure shows the reductions from the original reporting guidelines, assuming that no changes to the reporting requirements or additions of reportable chemicals and compounds occurred. Figure 38 also illustrates DoD's total reductions in toxic chemical releases and off-site transfers measured against the 1994 TRI baseline. However, these measurements take into account changes in

reporting requirements since 1994, such as yearly reporting amendments (including reporting from demilitarization activities beginning in 1999) and changes to the chemical and chemical compound list. The left column in both figures lists the 7 categories to which toxic chemicals are released (the figures do not include categories for off-site transfers). These release categories have the potential for the greatest impact and are, therefore, the categories that DoD is most concerned with reducing.

Figure 37
DoD TRI Reportable Quantities, 1994 to 1999
 assuming no changes to reporting requirements
 (pounds released or transferred)

Category	1994	1995	1996	1997	1998	1999	1994 - 1999 % Change
On-Site to Water	90,629	359,994	334,137	1,130,764	824,535	65,419	-27.82%
On-Site to Air	6,986,203	4,990,877	3,452,010	2,806,889	2,129,652	1,616,822	-76.86%
On-Site to Underground Injection	390	0	0	0	0	0	-100.00%
On-Site to Land	113,714	28,945	32,164	101,335	11,800	2,475	-97.82%
Off-Site to POTW	95,987	11,104	56,219	78,530	90,689	4,709	-95.09%
Off-Site Treatment	1,395,277	804,331	554,821	462,661	334,812	271,836	-80.52%
Off-Site Disposal	2,106,736	670,105	518,953	301,767	406,165	474,498	-77.48%
CALCULATED BASELINE							-77.42%

Figure 38
DoD TRI Reportable Quantities, 1994 to 1999
 assuming changes to reporting requirements
 (pounds released or transferred)

Category	1994	1995	1996	1997	1998	1999	1994 - 1999 % Change
On-Site to Water	90,629	359,994	393,844	191,106	904,140	817,059	801.54%
On-Site to Air	6,986,203	4,990,877	3,452,010	2,806,889	2,129,652	7,207,402	3.17%
On-Site to Underground Injection	390	0	0	0	0	0	-100.00%
On-Site to Land	113,714	28,945	32,164	101,335	11,800	718,089	531.49%
Off-Site to POTW	95,987	11,104	56,219	78,530	90,689	234,108	143.90%
Off-Site Treatment	1,395,277	804,331	554,821	462,661	418,665	274,505	-80.33%
Off-Site Disposal	2,106,736	670,105	518,953	301,767	406,165	476,059	-77.40%
CALCULATED BASELINE							-9.84%

DoD's ROLE IN EPA's CY 1999 TRI REPORT

DoD's facilities are only a small percentage of those that reported to EPA's *1999 Toxic Release Inventory Public Data Release*. Overall, 22,639 facilities reported toxic releases and off-site transfers to EPA; 63 of those were DoD facilities. EPA reported a total of more than 7.77 billion pounds of toxic chemicals released or transferred off-site during CY 1999; DoD contributed 9.7 million pounds, or 0.125 percent of the total. According to EPA's report, each facility released or transferred off-site an average of 343,303 pounds of toxic chemicals; DoD's average per facility was 154,400 pounds. (Figure 39 contains a summary of DoD's contributions to EPA's total TRI report.) Our past performance makes clear our commitment to meeting the TRI reduction goals and challenges EPA and past executive orders have laid out, and encourages us to continue meeting and exceeding these goals and challenges.

Figure 39
Comparison of CY 1999 TRI Reports:
DoD and EPA Totals

	DoD	EPA*
Number of Facilities Reporting	63	> 22,600
Total Releases and Transfers	10 million pounds**	> 7.77 billion pounds
Average Releases and Transfers per Facility	154,400 pounds***	343,303 pounds
Percent Change from CY 1998 Report	-10%	+5%

* EPA's report encompasses all TRI reporters, including DoD.

** This represents 0.125 percent of the total.

*** DoD's average is 45 percent of EPA's average.

FUTURE DIRECTIONS

NEW REDUCTION GOALS IN E.O. 13148

In April 2000, E.O. 13148, "Greening the Government through Leadership in Environmental Management," replaced E.O. 12856. This new E.O. continues the mandate that Federal facilities conduct TRI reporting and established new TRI reduction goals. E.O. 13148 requires Federal facilities to reduce TRI releases and off-site transfers by 40 percent (using a CY 2001 baseline year) by December 31, 2006. DoD is already well on its way to meeting the goals established in E.O. 13148 since many of the goals were part of DoD policy prior to the order.

THRESHOLD FOR LEAD REPORTING

An additional change in TRI reporting requirements that EPA enacted in 2000 is the reduction of the reporting threshold for lead from 10,000 pounds to 100 pounds. Because DoD relies heavily on lead for use in munitions, changes in the TRI reporting requirement will substantially impact the levels of lead reported. However, this new requirement does not take effect until the publication of the FY 2002 Environmental Quality Annual Report to Congress. (The report, which will be published in 2003, will cover Environmental Quality activities during FY 2002; the TRI report will cover activity that occurred in CY 2001.)

REPORTING FOR MUNITIONS-RELATED ACTIVITIES

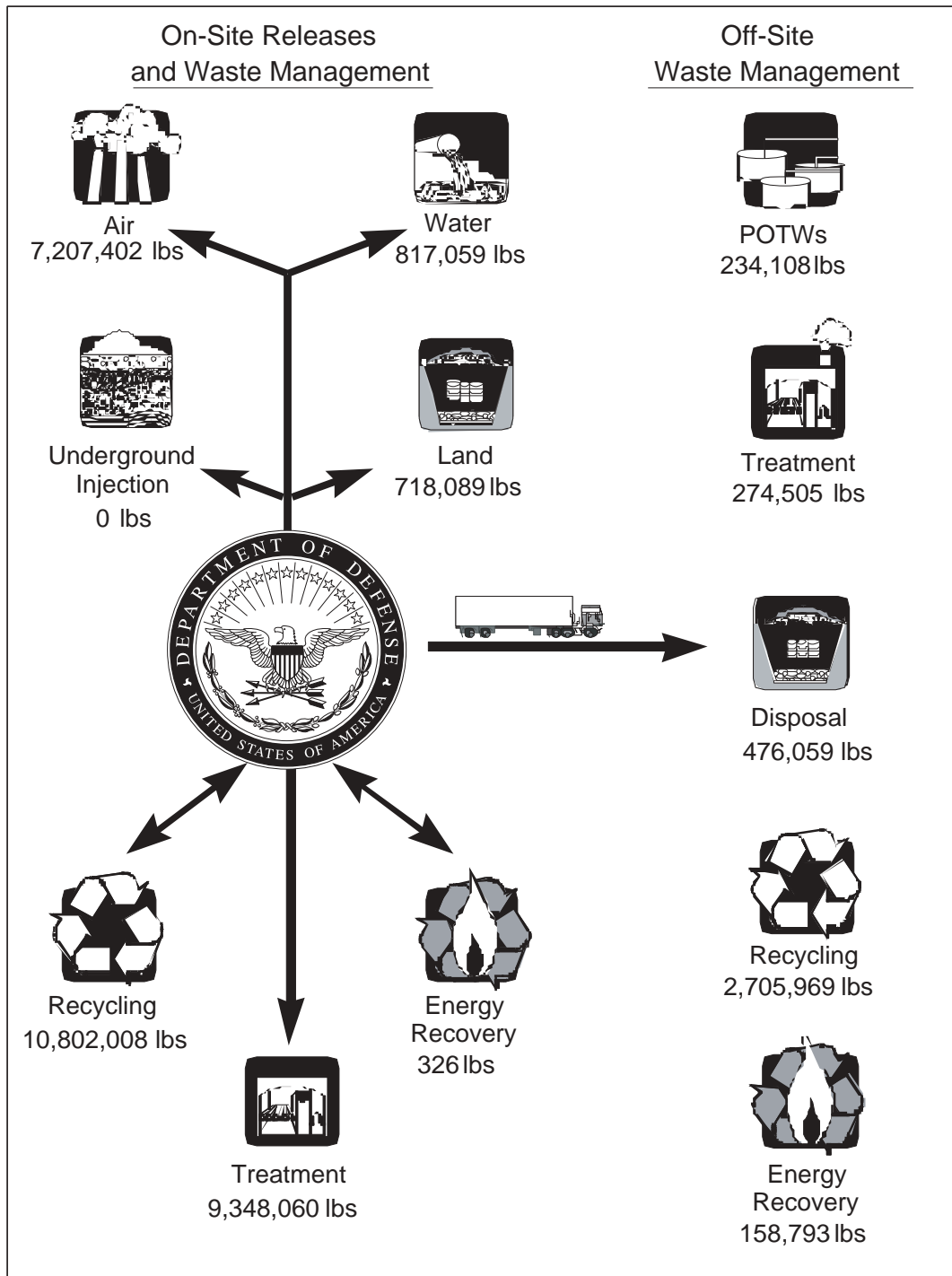
There are three major phases in the life-cycle of munitions—manufacture, use (including range activities), and demilitarization. Facilities involved in manufacturing (required to report since 1994) and demilitarization (required to report starting in 1999) are DoD's biggest TRI reporters. Beginning with CY 2001, DoD will begin reporting releases and off-site transfers associated with range activities. This will result in additional facilities reporting TRI releases and off-site transfers.

Although DoD has reduced the use of some toxic chemicals in munitions manufacturing, reducing TRI releases and off-site transfers from range operations could adversely affect training and mission readiness. In addition, DoD cannot significantly reduce TRI releases and off-site transfers as a result of OB/OD because this process is necessary in the life-cycle of munitions and is required to maintain current and future mission readiness.

DoD recognizes the limited pollution prevention opportunities for munitions-related activities, especially range and demilitarization activities. As a result, DoD is dedicated to finding new ways to reduce TRI releases and off-site transfers from actions other than demilitarization. By focusing reduction efforts elsewhere, DoD can achieve continued TRI reductions without impacting mission readiness. Each DoD Component is working to reduce other releases and off-site transfers to stay on course to achieve reduction goals. DoD will also continue its efforts to identify and reduce the use of toxic chemicals in munitions through the acquisition process. That DoD can succeed at this is evidenced by the reductions in total TRI releases and off-site transfers achieved in CY 1999 despite the additional reporting requirements.

As the TRI reporting system evolves, DoD must evolve and adapt with it. To do so, DoD looks for new ways to improve pollution prevention initiatives and manufacturing techniques.

Figure 40
CY 1999 TRI Data



TOTAL DoD TRI DATA

Table 1
Change in Top 10 DoD Chemical Releases and Transfers in Pounds
(based on 1994 baseline)

CHEMICAL NAME	1994	1995	1996	1997	1998	1999	94-99% difference
DICHLOROMETHANE	2,235,670	1,617,221	967,859	761,088	671,307	455,910	-80%
METHYL ETHYL KETONE	1,504,895	1,097,024	936,920	622,787	621,515	439,656	-71%
1,1,1-TRICHLOROETHANE	1,232,070	751,890	283,334	217,171	34,335	10	-100%
ETHYLENE GLYCOL	537,125	329,919	316,590	158,462	190,220	119,272	-78%
TOLUENE	445,350	234,517	194,972	126,245	103,489	120,103	-73%
PHENOL	411,988	266,784	124,235	87,281	76,791	52,144	-87%
ZINC COMPOUNDS	409,180	52,738	34,171	28,526	63,395	174,982	57%
TETRACHLOROETHYLENE	359,039	217,682	242,049	195,572	69,838	70,815	-80%
HEXACHLOROETHANE	351,370	56,112	23,461	-	-	-	-100%
HYDROCHLORIC ACID	298,000	Delisted	Delisted	Delisted	Delisted	Delisted	
TOTAL	7,784,687	4,623,887	3,123,591	2,197,132	1,830,890	1,301,253	-83%

Table 2
Change in Top 10 DoD Installations Releases and Transfers in Pounds
(based on 1994 baseline)

INSTALLATION NAME	1994	1995	1996	1997	1998	1999	94-99% difference
TINKER AFB	1,569,614	1,080,881	728,670	520,020	325,423	304,656	-81%
ROBINS AFB	776,616	578,562	334,898	403,058	368,442	322,549	-58%
ARMY PINE BLUFF ARSENAL	725,534	253,949	47,011	-	-	1,900	-100%
AF PLANT 06	554,555	507,909	292,613	133,400	71,924	41,200	-93%
ANNISTON ARMY DEPOT	527,591	428,840	225,446	245,617	366,481	441,942	-16%
NORTHROP GRUMMAN CORP	462,481	496,710	249,900	256,800	134,170	187,083	-60%
HILL AFB (Ogden)	367,909	263,560	294,815	234,029	250,301	251,551	-32%
KELLY AFB	342,871	227,663	144,014	100,850	42,500	64,010	-81%
MCCLELLAN AFB	340,750	231,800	279,100	162,161	64,100	20,700	-94%
NAS JACKSONVILLE	325,648	247,896	217,041	77,000	88,676	71,415	-78%
TOTAL	5,993,569	4,317,770	2,813,508	2,132,935	1,712,017	1,707,006	-72%

Table 3
Top 10 1999 DoD Chemicals
(pounds released)

ALUMINUM (FUME OR DUST)	4,301,338
COPPER	1,214,749
NITRATE COMPOUNDS	1,179,262
DICHLOROMETHANE	455,910
METHYL ETHYL KETONE	439,656
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	238,900
ZINC COMPOUNDS	147,123
XYLENE (MIXED ISOMERS)	131,513
TOLUENE	120,103
N-BUTYL ALCOHOL	120,067

Table 4
Top 10 1999 DoD Installations
(pounds released)

SIERRA ARMY DEPOT	5,390,239
RADFORD ARMY AMMUNITION PLANT	703,440
ANNISTON ARMY DEPOT	441,942
ROBINS AFB	322,549
TINKER AFB	304,656
OGDEN AIR LOGISTICS CENTER	251,551
PUGET SOUND NAVAL SHIPYARD	189,148
NORTHROP GRUMMAN CORP	187,083
SCHOFIELD BARRACKS	175,227
HOLSTON ARMY AMMUNITION PLANT	147,850

ARMY TRI DATA

Table 1
Change in Top 10 Army Chemical Releases and Transfers in Pounds
(based on 1994 baseline)

CHEMICAL NAME	1994	1995	1996	1997	1998	1999	94-99% difference
ZINC COMPOUNDS	368,971	20,008	31,171	3,426	32,998	147,123	-60%
HEXACHLOROETHANE	351,370	56,112	23,461	-	-	-	-100%
METHYL ETHYL KETONE	230,817	152,486	103,353	65,994	85,359	98,728	-57%
1,1,1-TRICHLOROETHANE	226,377	137,450	86,833	40,719	22,335	-	-100%
TRICHLOROETHYLENE	214,223	148,508	40,000	71,028	34,253	55,881	-74%
DICHLOROMETHANE	186,409	150,300	86,990	115,002	162,155	100,908	-46%
PHOSPHORIC ACID	135,990	48,410	51,177	44,783	94,434	-	-100%
ETHYLENE GLYCOL	121,059	194,648	85,073	35,039	20,366	18,794	-84%
CHLORINE	67,470	11,345	5,418	16,838	21,713	2,154	-97%
CHROMIUM COMPOUNDS	67,413	48,996	61,499	48,159	31,738	38,819	-42%

Table 2
Change in Top 10 Army Installation Releases and Transfers in Pounds
(based on 1994 baseline)

INSTALLATION NAME	1994	1995	1996	1997	1998	1999	94-99% difference
ARMY PINE BLUFF ARSENAL	725,534	253,949	47,011	-	-	1,900	-100%
ANNISTON ARMY DEPOT	527,591	428,840	225,446	245,617	366,481	441,942	-16%
LETTERKENNY ARMY DEPOT	144,485	109,693	39,621	18,968	27,804	27,852	-81%
ARMY WATERVLIET ARSENAL	135,075	46,144	82,375	96,543	91,282	54,010	-60%
RED RIVER ARMY DEPOT	117,864	81,798	45,778	46,525	19,092	102,543	-13%
HOLSTON ARMY AMMUNITION PLANT	101,900	322,200	236,260	246,100	55,056	147,850	45%
LAKE CITY ARMY AMMUNITION PLANT	83,911	67,497	49,041	42,662	68,012	31,574	-62%
FORT HOOD	57,550	45,600	686	686	61	686	-99%
STRATFORD ENGINEERING PLANT	55,441	24,501	23,701	-	-	-	-100%
ROCK ISLAND ARSENAL	52,000	14,500	-	-	-	-	-100%

Table 3
Top 10 1999 Army Chemicals
(pounds released)

ALUMINUM (FUME OR DUST)	4,301,338
COPPER	1,174,061
NITRATE COMPOUNDS	853,797
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	148,900
DICHLOROMETHANE	100,908
METHYL ETHYL KETONE	98,728
LEAD COMPOUNDS	63,742
TRICHLOROETHYLENE	55,881
XYLENE (MIXED ISOMERS)	44,097
CHROMIUM COMPOUNDS	38,819

Table 4
Top 10 1999 Army Installations
(pounds released)

SIERRA ARMY DEPOT	5,390,239
RADFORD ARMY AMMUNITION PLANT	703,440
ANNISTON ARMY DEPOT	441,942
SCHOFIELD BARRACKS	175,227
HOLSTON ARMY AMMUNITION PLANT	147,850
RED RIVER ARMY DEPOT	102,543
DESERET ARMY CHEMICAL DEPOT	98,550
WATERVLIET ARSENAL	54,010
MCALISTER ARMY AMMUNITION PLANT	50,191
FORT BLISS	34,217

NAVY TRI DATA

Table 1
Change in Top 10 Navy Chemical Releases and Transfers in Pounds
(based on 1994 baseline)

CHEMICAL NAME	1994	1995	1996	1997	1998	1999	94-99% difference
1,1,1-TRICHLOROETHANE	596,172	438,269	120,000	135,300	-	10	-100%
DICHLOROMETHANE	358,283	252,221	161,750	57,310	95,789	44,465	-88%
METHYL ETHYL KETONE	288,488	231,715	198,900	90,610	163,971	96,745	-66%
N-BUTYL ALCOHOL	184,055	131,463	137,372	126,837	157,191	117,999	-36%
NITRIC ACID	160,881	14,166	10,416	52,003	13,664	2,797	-98%
XYLENE (MIXED ISOMERS)	130,312	64,455	52,306	119,244	87,563	84,173	-35%
FREON 113	129,933	21,925	51,547	-	-	-	-100%
TOLUENE	92,078	15,352	29,959	32,800	26,500	12,260	-87%
PHENOL	48,068	31,949	31,490	-	9,950	-	-100%
COPPER	37,785	46,134	29,600	30,263	36,407	40,688	8%

Table 2
Change in Top 10 Navy Installation Releases and Transfers in Pounds
(based on 1994 baseline)

INSTALLATION NAME	1994	1995	1996	1997	1998	1999	94-99% difference
NORTHROP GRUMMAN CORP (VOUGHT)	462,481	496,710	249,900	256,800	134,170	187,083	-60%
NAS JACKSONVILLE	325,648	247,896	217,041	77,000	88,676	71,415	-78%
NAS ALAMEDA	227,500	-	-	-	-	-	-100%
NORFOLK NAVAL SHIPYARD	186,090	65,666	53,980	62,120	79,458	118,477	-36%
BETHESDA	184,602	-	-	-	-	-	-100%
PUGET SOUND NAVAL SHIPYARD	178,400	147,041	139,800	186,100	199,373	189,148	6%
NAVAL BASE NORFOLK	132,325	74,971	59,800	21,380	14,530	650	-100%
PHILADELPHIA NAVAL SHIPYARD	129,340	73,870	-	-	-	-	-100%
NAWC PATUXENT RIVER	76,174	-	-	-	-	-	-100%
NAVAL WEAPONS IND RESERVE PLANT	73,016	24,596	-	-	-	-	-100%

Table 3
Top 10 1999 Navy Chemicals
(pounds released)

N-BUTYL ALCOHOL	117,999
NITRATE COMPOUNDS	115,774
METHYL ETHYL KETONE	96,745
XYLENE (MIXED ISOMERS)	84,173
COPPER COMPOUNDS	51,615
DICHLOROMETHANE	44,465
COPPER	40,688
ZINC COMPOUNDS	27,859
NICKEL	24,584
LEAD	22,450

Table 4
Top 10 1999 Navy Installations
(pounds released)

PUGET SOUND NAVAL SHIPYARD	189,148
NORTHROP GRUMMAN CORP	187,083
NORFOLK NAVAL SHIPYARD	118,477
NAS JACKSONVILLE	71,415
NAS NORTH ISLAND	46,144
PEARL HARBOR NAVAL COMPLEX	27,590
NAS CORPUS CHRISTI	16,996
NIROP-ALLEGANY BALLISTICS LAB	16,120
NSWC PHILADELPHIA	13,014
NAVSTAT MAYPORT	11,260

MARINE CORPS TRI DATA

Table 1
Change in Top 10 Marine Corps Chemical Releases and Transfers in Pounds
(based on 1994 baseline)

CHEMICAL NAME	1994	1995	1996	1997	1998	1999	94-99% difference
ETHYLENE GLYCOL	237,821	86,708	61,892	32,409	28,340	6,266	-97%
DICHLOROMETHANE	155,986	98,300	15,000	-	-	-	-100%
METHYL ETHYL KETONE	144,653	128,588	127,600	59,250	55,971	33,741	-77%
1,1,1-TRICHLOROETHANE	76,062	48,289	-	-	-	-	-100%
TOLUENE	68,054	53,350	37,000	8,900	6,600	10,054	-85%
XYLENE (MIXED ISOMERS)	51,535	37,416	21,400	5,600	3,800	3,243	-94%
FREON 113	28,000	27,000	-	-	-	-	-100%
GLYCOL ETHERS	28,000	47,000	20,000	4,300	12,500	-	-100%
CHROMIUM	25,897	-	-	-	-	-	-100%
N-BUTYL ALCOHOL	24,001	8,200	-	-	-	-	-100%

Table 2
Change in Top 10 Marine Corps Installation Releases and Transfers in Pounds
(based on 1994 baseline)

INSTALLATION NAME	1994	1995	1996	1997	1998	1999	94-99% difference
MCLB BARSTOW	322,011	87,961	31,304	16,846	36,536	2,680	-99%
MCLB ALBANY	282,273	254,340	133,200	32,490	13,293	38,920	-86%
MCAS CHERRY PT	263,370	216,673	110,091	33,664	39,472	29,391	-89%
MCB CAMP LEJEUNE	31,630	-	835	4,270	373	326	-99%
USMC BLOUNT ISLAND COMMAND	20,000	-	10,700	-	-	-	-100%
MCAS YUMA	1,050	1,028	-	-	-	-	-100%
MCB QUANTICO	34	36	37	37	24	-	-100%
MC RECRUIT DEPOT PARRIS ISLAND	5	-	-	-	-	-	-100%
MCB CAMP PENDLETON	-	5,376	-	26,455	14,609	1,740	0%

Table 3
Top 10 1999 Marine Corps Chemicals
(pounds released)

METHYL ETHYL KETONE	33,741
N-METHYL-2-PYRROLIDONE	20,130
TOLUENE	10,054
ETHYLENE GLYCOL	6,266
XYLENE (MIXED ISOMERS)	3,243
BENZENE	62
NAPHTHALENE	1
NA	
NA	
NA	

Table 4
Top 10 1999 Marine Corps Installations
(pounds released)

MCLB ALBANY	38,920
MCAS CHERRY POINT	29,391
MCLB BARSTOW	2,680
MCB CAMP PENDLETON	1,740
MCAS BEAUFORT	440
MCB CAMP LEJEUNE	326
MCAS YUMA	0
USMC BLOUNT ISLAND COMMAND	0
NA	
NA	

AIR FORCE TRI DATA

Table 1

**Change in Top 10 Air Force Chemical Releases and Transfers in Pounds
(based on 1994 baseline)**

CHEMICAL NAME	1994	1995	1996	1997	1998	1999	94-99% difference
DICHLOROMETHANE	1,534,992	1,116,400	704,119	588,776	413,363	310,537	-80%
METHYL ETHYL KETONE	840,937	584,235	507,067	406,933	316,214	210,442	-75%
PHENOL	363,920	234,835	92,745	87,281	66,841	52,144	-86%
TETRACHLOROETHYLENE	335,798	217,340	241,835	195,572	69,838	70,815	-79%
1,1,1-TRICHLOROETHANE	333,459	127,882	76,501	41,152	12,000	-	-100%
TOLUENE	225,563	133,460	90,287	58,658	44,753	80,528	-64%
ETHYLENE GLYCOL	162,300	40,916	144,009	77,534	113,384	76,670	-53%
CHROMIUM COMPOUNDS	151,886	56,898	52,246	49,470	35,500	33,400	-78%
GLYCOL ETHERS	139,390	30,193	44,076	45,396	44,100	38,330	-73%
MANGANESE COMPOUNDS	136,000	-	-	-	-	-	-100%

Table 2

**Change in Top 10 Air Force Installation Releases and Transfers in Pounds
(based on 1994 baseline)**

INSTALLATION NAME	1994	1995	1996	1997	1998	1999	94-99% difference
TINKER AFB	1,569,614	1,080,881	728,670	520,020	325,423	304,656	-81%
ROBINS AFB	776,616	578,562	334,898	403,058	368,442	322,549	-58%
AF PLANT 06 (LOCKHEED MARTIN)	554,555	507,909	292,613	133,400	71,924	41,200	-93%
OGDEN AIR LOGISTICS CENTER (HILL AFB)	367,909	263,560	294,815	234,029	250,301	251,551	-32%
KELLY AFB	342,871	227,663	144,014	100,850	42,500	64,010	-81%
MCCLELLAN AFB	340,750	231,800	279,100	162,161	64,100	20,700	-94%
ARNOLD ENGINEER DEVELOP CNT	154,096	125,833	131,966	93,992	94,779	60,570	-61%
EDWARDS AFB	132,062	-	-	-	-	22,009	-83%
AF PLANT 44 (HUGHES SYSTEM)	123,430	35,502	18,800	3,100	-	-	-100%
AF PLANT 03 (ROCKWELL INTERNATIONAL)	123,413	37,355	46,026	-	-	-	-100%

Table 3

**Top 10 1999 Air Force Chemicals
(pounds released)**

DICHLOROMETHANE	310,537
METHYL ETHYL KETONE	210,442
NITRATE COMPOUNDS	209,691
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	90,000
TOLUENE	80,528
ETHYLENE GLYCOL	76,670
TETRACHLOROETHYLENE	70,815
PHENOL	52,144
CERTAIN GLYCOL ETHERS	38,330
METHYL ISOBUTYL KETONE	34,329

Table 4

**Top 10 1999 Air Force Installations
(pounds released)**

ROBINS AFB	322,549
TINKER AFB	304,656
OGDEN AIR LOGISTICS CENTER	251,551
WRIGHT-PATTERSON AFB	90,000
AF PLANT 4	89,209
KELLY AFB	64,010
ARNOLD AFB	60,570
AF PLANT 6	41,200
EDWARDS AFB	22,009
MCCLELLAN AFB	20,700

DEFENSE LOGISTICS AGENCY TRI DATA

Table 1
Change in Top 10 DLA Chemical Releases and Transfers in Pounds
(based on 1994 baseline)

CHEMICAL NAME	1994	1995	1996	1997	1998	1999	94-99% difference
TOLUENE	10,890	-	-	-	-	-	-100%
CYCLOHEXANE	8,037	-	-	-	-	-	-100%
BENZENE	6,353	-	-	-	-	-	-100%
NAPHTHALENE	2,919	-	-	-	-	-	-100%
METHANOL	2,908	-	-	-	-	-	-100%
XYLENE (MIXED ISOMERS)	2,648	-	-	-	-	-	-100%
BROMOTRIFLUOROMETHANE	1,372	3,685	645	800	3,448	2,980	117%
BROMOCHLORODIFLUOROMETHANE	960	707	1,687	800	1,525	1,474	54%
ETHYLBENZENE	494	-	-	-	-	-	-100%
DICHLORODIFLUOROMETHANE	100	485	1,513	500	226	915	815%

Table 2
Change in Top 10 DLA Installation Releases and Transfers in Pounds
(based on 1994 baseline)

INSTALLATION NAME	1994	1995	1996	1997	1998	1999	94-99% difference
GRAND FORK FUEL SUPPORT POINT	10,872	-	-	-	-	-	-100%
VERONA FUEL SUPPORT POINT	5,516	-	-	-	-	-	-100%
CHARLESTON FUEL SUPPORT POINT	4,274	-	-	-	-	-	-100%
LANGER JEWEL BEARING PLANT	3,000	-	-	-	-	-	-100%
ESCANABA FUEL SUPPORT POINT	2,819	-	-	-	-	-	-100%
DEFENSE SUPPLY CENTER RICHMOND	2,432	5,101	4,854	2,200	5,545	5,670	133%
SEARSPORT FUEL SUPPORT POINT	1,780	-	-	-	-	-	-100%
SAN PEDRO FUEL SUPPORT POINT	1,200	-	-	-	-	-	-100%
TAMPA FUEL SUPPORT POINT	1,175	-	-	-	-	-	-100%
MELVILLE FUEL SUPPORT POINT	1,035	-	-	-	-	-	-100%

Table 3
Top 10 1999 DLA Chemicals
(pounds released)

BROMOTRIFLUOROMETHANE	2,980
BROMOCHLORODIFLUOROMETHANE	1,474
DICHLORODIFLUOROMETHANE (CFC-12)	915
DICHLOROTETRAFLUOROETHANE	301
NA	
NA	
NA	
NA	
NA	
NA	

Table 4
Top 10 1999 DLA Installations
(pounds released)

DEFENSE SUPPLY CENTER RICHMOND	5,670
NA	
NA	
NA	
NA	
NA	
NA	
NA	
NA	
NA	

AN EXPLANATION OF TERMS USED

AIR RELEASES

Releases to air are reported either as stack or fugitive emissions. Stack emissions are releases to air that occur through confined air streams, such as stacks, vents, ducts, or pipes. Fugitive emissions include equipment leaks, evaporative losses from surface impoundments and spills, and releases from building ventilation systems.

SURFACE WATER RELEASES

Releases to water include discharges to streams, rivers, lakes, oceans, and other bodies of water. This includes releases from contained sources, such as industrial process outflow pipes or open trenches. Releases caused by runoff, including storm water runoff, are also reportable under TRI.

LAND RELEASES

Releases to land covered under TRI are those that occur within the boundaries of the reporting facility. Releases to land include disposal of toxic chemicals into landfills, land treatment/application farming (in which waste containing a listed chemical is applied to or mixed with the soil), surface impoundments (which are uncovered holding areas used to volatilize and/or settle waste materials), and other land disposal (such as spills, leaks, or waste piles).

UNDERGROUND INJECTION

Underground injection is a contained release of fluid into a subsurface well for the purpose of waste disposal.

RECYCLING

Toxic chemicals can be either recycled on-site or sent off-site for recycling. The toxic chemicals may be recovered or regenerated by a variety of methods, including solvent recovery, metals recovery, and acid regeneration. Once recycled, these chemicals may be returned to the installation or sold for further processing or use. The quantity reported as on-site recycling in the Form R represents the quantity recovered at the facility, not the quantity that entered the recycling operation. The quantity reported as off-site recycling in the Form R represents the quantity that left the installation boundary for recycling, not the amount recovered at the off-site location.

DESTRUCTION

Toxic chemicals can be destroyed on-site using a variety of methods. After destruction, no further treatment or transfer to an off-site location is necessary. The quantity reported in the Form R represents the quantity of the toxic chemical that was destroyed in the on-site waste treatment operations, not the amount that entered any treatment operation.

TREATMENT

Toxic chemicals may be sent off-site for treatment using a variety of methods, including biological treatment, neutralization, incineration, stabilization, and physical separation. These methods result in varying degrees of destruction of the toxic chemical.

POTWS

Toxic chemicals can be transferred off-site to a publicly owned treatment works (POTW). Wastewaters are transferred through pipes or sewers to a POTW. Not all TRI chemicals can be treated or removed by a POTW. The quantity reported in the Form R represents the quantity of the toxic chemical that left the installation boundary for POTW treatment, not the amount that was destroyed at the off-site location.

DISPOSAL

Toxic chemicals sent off-site to a facility for disposal generally are either released to land or injected underground at the off-site location.

ENERGY RECOVERY

Toxic chemicals can be either processed on-site or sent off-site for energy recovery. The toxic chemicals are combusted in industrial furnaces or boilers that generate heat or energy for use at that location. Treatment of chemicals by incineration is not considered to be energy recovery. The quantity reported as on-site energy recovery in the Form R represents the quantity of toxic chemicals that was destroyed in the combustion process, not the amount that entered the energy recovery unit. The quantity reported as off-site energy recovery in the Form R represents the quantity of toxic chemical that left the installation boundary for recovery, not the amount destroyed at the off-site location.